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ABSTRACT

The study reported here tested a proposed teacher efficacy model by examining: (1) whether perceived teacher efficacy, teacher communication competence, and teacher immediacy are significant predictors of perceived affective and cognitive student learning; and (2) whether perceived teacher communication competence and teacher immediacy are significant predictors of perceived teacher efficacy. Subjects, 47 instructors and 557 students at a large midwestern university, completed questionnaires. Instructors completed self-report measures of teacher efficacy, and students completed reports of teacher communication competence and immediacy, and responded to a scale which measures cognitive and affective learning. Results indicated that: teachers who were perceived as competent and immediate positively influenced their students' affective learning; teachers who were perceived as competent and immediate had a negative impact on cognitive student learning; and student perceptions of teacher communication competence and teacher immediacy made significant contributions to the prediction of teacher efficacy. Findings represent a paradox: while perceived teacher competence and teacher immediacy were significantly predictive of student learning, perceived teacher efficacy (referring to a perception that teachers can influence student learning) was not. An unanticipated finding was that perceived teacher communication competence and teacher immediacy significantly predicted cognitive student learning, but in a negative direction. (A figure of the model and four tables of data are included. Contains 68 references.) (RS)

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The Development of a Communication-Based Model of Teacher Efficacy

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Abstract

This study represents an attempt to integrate research in education and communication by proposing a model of teacher efficacy. Teacher efficacy refers to a teacher's perception that he/she has a positive impact on student learning. Results indicated that perceived teacher communication competence and teacher immediacy were significant predictors of perceived teacher efficacy and student learning. Implications of these findings as well as suggestions for future research are included.

The Development of a Communication-Based Model of Teacher Efficacy

Recent reports on burnout and dissatisfaction with the teaching profession have prompted scholars to become increasingly concerned with teacher motivation (Ray & Miller, 1991). Suggestions for educational reform, for instance, point to the need to investigate teacher efficacy as a source of motivation among teachers (Ashton, 1984; Ashton & Webb, 1986; Brissie, Hoover-Dempsey, & Bassler, 1988).

Teacher efficacy refers to teachers' "belief in their ability to have a positive effect on student learning" (Ashton, 1985, p. 142). The concept of teacher efficacy is grounded in Bandura's (1977a; 1977b; 1982) Social Learning Theory. Bandura suggested that motivation is affected by belief in ones ability to perform behaviors or to produce certain outcomes. Individuals who perceive themselves as capable of reaching their goals are likely to be persistent in their efforts to attain goals, and consequently, will experience greater self-efficacy.

Teacher efficacy is a cognition that is manifested in teacher behavior. A teacher's sense of efficacy, then, influences the behaviors that he/she displays in the classroom (Bandura, 1982; Denham & Michael, 1981; Gorrell, 1990). Highly efficacious teachers expect positive student learning outcomes to result from their teaching. Teachers will act on this expectation by performing behaviors intended to positively impact student learning. Conversely, teachers with a low sense of efficacy may fail to display efficacious behaviors in the classroom.

The purpose of this study was to develop a communication based process-product model of teacher efficacy. This model examines the relationships among teacher efficacy and variables that have been linked to teacher efficacy in past research. Specifically, the model represents an attempt to integrate past research on teacher efficacy, teacher communication competence, teacher immediacy, and student learning.

Several lines of research guide the development of the teacher efficacy model. Research reveals that teacher efficacy is a meaningful contributor to student academic achievement (Armor, Conry-Oseguera, Cox, King, McDonnel, Pascal, Pauly, & Zellman, 1976; Ashton & Webb, 1986; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977; Guskey, 1982). Students of highly efficacious teachers display higher levels of academic achievement than do students of low efficacy teachers. As Ashton (1984) asserts, "no other teacher characteristic has demonstrated such a consistent relationship to student achievement" (p. 28).

Studies also indicate that teacher communication behaviors such as competence (e.g. McCroskey, Holdridge, & Toomb, 1974) and immediacy (e.g. Gorham & Zakahi, 1990) enhance student learning. Further, teacher immediacy (e.g. Ashton & Webb, 1986) has also been linked to teacher efficacy. It is necessary to examine the communication behaviors enacted by teachers in order to understand how these behaviors influence a teacher's sense of efficacy, and ultimately, student learning.

The model of teacher efficacy advanced in this study represents a convergence of the research mentioned above. The main objective of this study, then, was to test the proposed teacher efficacy model. This was accomplished by examining: a) the influence of perceptions of teacher efficacy, teacher communication competence, and teacher immediacy on perceptions of student learning, and b) the impact of perceived teacher communication competence and teacher immediacy on teachers' perceptions of efficacy. Figure 1 represents an illustration of the proposed model of teacher efficacy.

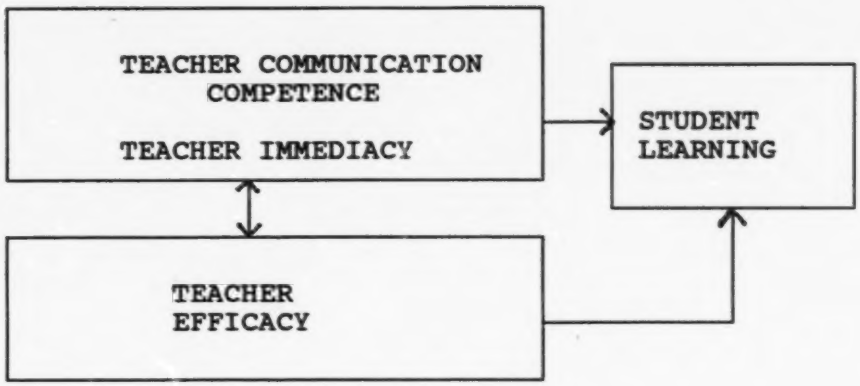

Figure 1. Teacher efficacy model.

According to the model, perceived teacher efficacy, perceived teacher communication competence, and perceived teacher immediacy are mutually influential. Perceived student learning, then, is influenced by perceptions of teacher efficacy, competence and immediacy. The components of the teacher efficacy model do not function independently of one another, accounting for the dynamic nature of the classroom environment.

Inherent within the model of teacher efficacy are a number of assumptions. First, teacher efficacy is a cognition that both influences and is influenced by teacher behaviors. A teacher may display behaviors students respond to favorably, thereby increasing the teacher's sense of efficacy. Implicit within this first assumption is that teacher efficacy is learned. Teachers learn, through education and experience, the behaviors that enhance student achievement.

Second, teacher efficacy is a situational variable. Teachers possess varying levels of efficacy, and sense of efficacy may change over time. Teacher efficacy may vary from class to class and from year to year, for example. Past research has viewed teacher efficacy as both a trait and a state (Woolfolk & Hoy, 1990). The model proposed here, however, suggests that

teacher efficacy may be dependent upon such situational variables as teacher communication competence, teacher immediacy, and student learning.

The third assumption of the model proposes that teachers are influential agents in the learning process. Specifically, the communication behaviors (i.e. competence, immediacy) that teachers display in the classroom will have an impact on student learning. Therefore, the teacher efficacy model suggests that teachers contribute to their own sense of efficacy as well as student learning.

Teacher Efficacy

The first notable research on teacher efficacy emerged from two Rand Corporation studies (Armor et al., 1976; Berman et al., 1977). These studies represented a "breakthrough because they suggest that teachers' sense of efficacy is a component of teacher motivation associated with student achievement" (Ashton & Webb, 1986, p. 3).

Specifically, the Rand studies revealed that teacher efficacy was positively associated with increased student achievement, as well as teacher-oriented variables such as the achievement of project goals, and success with curriculum innovations. The latter variables refer to such things as the number of project goals achieved by teachers, and the successful adoption of innovative teaching techniques. Further, teachers participating in the Rand studies believed they could have an impact on learning by transcending external obstacles such as low student motivation and undesirable student home environment.

Ashton and Webb (1986) discovered that teacher efficacy was positively related to student achievement in mathematics, language, and communication among high school students enrolled in basic skills classes. Results of this research also provide support for the positive association between teacher immediacy and student learning. Specifically, the researchers

found that teachers who had a strong sense of efficacy tended to use praise and nonverbal behaviors such as nodding, smiling, and positive facial expressions.

Guskey (1982) examined elementary and secondary school teachers' perceived responsibility for positive versus negative student learning outcomes. Guskey concluded that a teacher's sense of efficacy is influenced by the degree to which a teacher believes his/her efforts are responsible for positive student learning outcomes, as well as by external factors, such as the difficulty of the teaching task.

Teacher Communication Competence

Research in instructional communication suggests that teachers who communicate competently are able to facilitate student learning. According to Rubin (1990), communication competence includes knowledge of appropriate and effective communication behaviors, as well as the requisite skills and motivation to enact such behaviors.

Competent communication is a necessary antecedent to effective teaching (Rubin & Feezel, 1986). Teachers must be able to enact both appropriate and effective behaviors when disseminating information to their students. Communication skills repeatedly appear on lists that identify essential teacher competencies (McCaleb, 1984). Teachers spend a majority of their time communicating with others, both in and out of the classroom. Consequently, teacher competence is assessed, in part, by communication ability (Downs, Javidi, & Nussbaum, 1988; McCaleb, 1984; Rubin & Feezel, 1986; Scott & Nussbaum, 1981).

Skills that have been identified as indicants of teaching competence include credibility, positive communicator style, immediacy, and nonverbal expressiveness (Rubin & Feezel, 1985). The competence component of teacher credibility measures is a significant predictor of student learning (McCroskey, Holdridge, & Toomb, 1974) as well as student recall of information (Wheeless, 1975). Teacher communication skill, as measured by components of credibility and

communicator style, is positively associated with perceived teaching effectiveness (Rubin & Feezel, 1986). Collectively, these studies demonstrate that teacher communication skills influence student perceptions of teacher competence and, in turn, student learning (Rubin & Feezel, 1985).

Teacher Immediacy

The use of immediacy behaviors enhances closeness and generates positive attitudes by decreasing the physical and/or psychological distance between communicators (Mehrabian, 1969; 1971). Immediacy has been identified as a variable that facilitates classroom communication (Gorham & Christophel, 1990). For example, the use of immediacy behaviors such as addressing students by name, smiling, praising students, using personal examples in lectures and conversing with students outside of class serve to make teachers appear more "human" and accessible to students. The display of immediate behaviors helps to foster an interpersonal relationship between teachers and students (DeVito, 1986; Graham, West, & Schaller, 1992). This teacher-student interaction is integral to the learning experience (Richmond, Gorham, & McCroskey, 1987).

Research has repeatedly demonstrated that teacher immediacy is positively related to affective student learning (Andersen, 1979; Andersen, Norton, & Nussbaum, 1981; Christophel, 1990; Gorham, 1988; Gorham & Zakahi, 1990; Kearney, Plax, & Wendt-Wasco, 1985; Plax, Kearney, McCroskey, & Richmond, 1986; Richmond, 1990) as well as cognitive student learning (Christophel, 1990; Gorham, 1988; Gorham & Zakahi, 1990; Kelley & Gorham, 1988; Richmond, 1990; Richmond, Gorham, & McCroskey, 1987). Teachers use immediacy behaviors to communicate positive affect toward their students and teaching in general. Immediacy is affectively based, therefore, teacher immediacy should result in greater student affect (Kearney, Plax, & Wendt-Wasco, 1985). This is explained by Richmond, Gorham, and

McCroskey (1987), who stated that "a positive interpersonal relationship developed between teachers and students would seem likely to influence the development of favorable attitudes toward the learning situation" (p. 575).

Student Learning

Numerous instructional communication studies have operationalized student learning according to Bloom's (1956; 1976) taxonomy of learning domains. Specifically, this taxonomy indicates that learning is comprised of the following three domains: 1) affective; 2) cognitive; and 3) behavioral. These domains have traditionally been viewed by researchers as interdependent (Richmond, Gorham, & McCroskey, 1987), as all contribute to a student's total educational experience.

The affective learning domain pertains primarily to student attitudes, beliefs, and values regarding the learning process. Affective learning involves, for example, the development of a positive attitude toward course content and the instructor.

The cognitive domain includes learning associated with "the recall or recognition of knowledge and the development of intellectual abilities and skills" (Bloom, 1956, p. 7). Cognitive learning is perhaps what is traditionally thought of as learning, as it pertains to the acquisition of knowledge. This learning domain includes behaviors such as comprehension, and the organization and analysis of information.

The behavioral domain of learning includes such things as the development of motor skills as well as behavior changes that are diplayed as a result of learning. Students acquire knowledge, and subsequently decide whether or not to apply that knowledge. Behavioral learning is therefore an overt manifestation of cognitive learning. This domain, then, "is in many ways the true goal of education" (Nussbaum & Scott, 1980, pp. 554-555).

In general, research has demonstrated that the behaviors a teacher displays in the classroom affect student attitudes and behaviors toward learning. Student learning is influenced by teacher communication behaviors as well as by teacher efficacy. Research has not yet indicated, however, the extent to which communication behaviors (i.e. teacher communication competence and teacher immediacy) influence a teacher's sense of efficacy, and in turn, student learning. Therefore, the model proposed in this study was designed to investigate the interrelationships among teacher efficacy, teacher communication competence, teacher immediacy, and student learning from a communication perspective. Such an investigation will provide insight into effective teaching practices.

The model of teacher efficacy advanced in this study will increase our understanding of the classroom communication behaviors that contribute to teacher efficacy. This research will provide information requisite for teacher preparation and evaluation. Scholars have suggested efficacy training for preservice teachers, based on an awareness of the impact of teacher efficacy on student learning (Ashton, 1984; Gorrell & Capron, 1988; Gorrell & Capron, 1989). According to Sorensen (1989), "prescriptive models delineating interpersonal variables and effects on the teacher-student relationships are noticeably absent from teachers' preparation for the classroom" (pp. 259-260). This study will assist in isolating indicants of teacher efficacy, thereby facilitating teacher training. If, as Ashton (1984) asserts, "a potentially powerful paradigm for teacher education can be developed on the basis of the construct of teacher efficacy" (p. 31), then studies such as this are both intriguing and necessary.

Based on the problem statement outlined above, the following research questions were posed:

RQ 1: Are perceived teacher efficacy, teacher communication competence, and teacher immediacy significant predictors of perceived affective student learning?

RQ 2: Are perceived teacher efficacy, teacher communication competence, and teacher immediacy significant predictors of perceived cognitive student learning?

RQ 3: Are perceived teacher communication competence and teacher immediacy significant predictors of perceived teacher efficacy?

Method

Participants

Participants in this study included 47 instructors and 557 students at a large midwestern university. Demographic analyses indicated that thirty of the instructors were male, while 17 were female. Seventeen percent of the teachers were full professors, 38% were associate professors, nine percent were assistant professors, two percent were lecturers or adjunct faculty members, and 34% were graduate teaching assistants. Thirty-six percent of the teachers had taught for 1-5 years, 14% had 6-10 years of teaching experience, seven percent had taught between 11-15 years, 11% had 16-20 years of teaching experience, seven percent

indicated 21-25 years of teaching experience, and 25% reported over 25 years of teaching experience.

Demographic analyses of the student data indicated that 56% of the student respondents were female, while the remaining 44% were male. Four percent were first-year students, eight percent were sophomores, 25% juniors, 58% seniors, and five percent of the students were either post-graduate students or high school students enrolled in summer courses. Students participating in the study were enrolled in degree programs within all academic colleges at the university.

Procedures

A sample of college instructors were contacted by mail and asked to serve as participants and to solicit the participation of their students for this study. Names of instructors currently teaching were obtained from the course schedule book that is issued by the university. Instructors and students (n=47 classrooms) who agreed to take part in the study were administered questionnaires.

Teachers were asked to complete a self-report measure of teacher efficacy. Students were asked to complete other-reports of teacher communication competence and immediacy as well as measures of cognitive and affective learning. All respondents were asked to participate on a voluntary basis and were assured of the anonymity of their responses.

Instrumentation

Teacher efficacy. Teacher efficacy was operationalized by a modified version of the Teacher Efficacy Scale (Gibson & Dembo, 1984). The original 16-item scale was altered for the purposes of the present study, resulting in a 10-item instrument. Items omitted related to student home environment and school policies and procedures, issues not salient to this study.

The modified teacher efficacy scale is a five-point Likert-type scale, with response options ranging from (1) "strongly disagree" to (5) "strongly agree."

Previous examination of internal consistency for the Teacher Efficacy Scale yielded an alpha coefficient of .79 for the total scale (Gibson & Dembo, 1984). An alpha coefficient of .45 was obtained in the present study. Potential causes of this low reliability coefficient are discussed below.

Teacher communication competence. Teacher communication competence was assessed with a modified version of the Communicative Competence Scale (CCS) developed by Weimann (1977). The original version of the CCS is a 36-item other-report instrument designed to assess six components of competence: general communicative competence, affiliation/support, empathy, behavioral flexibility, social relaxation, and interaction management. The CCS, originally an interpersonal communication competence instrument, was modified in this study to reflect teacher communication competence. Teachers received one general score of competence from this instrument. Four items not salient to the purposes of this study were omitted from the CCS, resulting in a 32-item instrument.

The CCS is a five-point Likert-type scale, with response options ranging from (1) "strongly disagree" to (5) "strongly agree." Students completed the CCS, providing an other-report of teacher communication competence. Teacher competence was assessed by students, as judgments of competence appear to be more accurate when rendered by someone other than oneself (Perotti & DeWine, 1987; Spitzberg & Cupach, 1989). Reliability of the CCS has ranged from .84 (Street, Mulac, & Weimann, 1988) to .96 (Weimann, 1977). An alpha coefficient of .95 was obtained for the CCS in the present study.

Teacher immediacy. Students completed the 34-item Immediacy Behavior Scale, an instrument designed to assess both verbal (Gorham, 1988) and nonverbal (Richmond, Gorham,

& McCroskey, 1987) teacher immediacy. Students assessed the frequency of teacher immediacy behaviors such as the use of humor, addressing students by name, providing feedback, and gesturing and smiling while talking to the class. Items were measured on a five-point Likert-type scale anchored by (1) "never" and (5) "very often." A high score indicated high immediacy. The Immediacy Behavior Scale was treated as a unidimensional instrument in this study.

Reports of reliability for the verbal dimension of the Immediacy Behavior Scale have ranged from .88 (Christophel, 1990) to .94 (Gorham, 1988). Reliability reports for the nonverbal dimension of the scale have ranged from .80 (Richmond, Gorham, & McCroskey, 1987) to .89 (Gorham & Zakahi, 1990). An examination of internal consistency yielded an alpha coefficient of .88 for this scale in the present study.

Student learning. Two instruments were used to assess student learning. A "learning loss" scale developed by Richmond, Gorham, and McCroskey (1987) was used to measure cognitive student learning. The two-item instrument instructs students to indicate 1) how much they learned in a particular class and 2) how much they believe they could have learned had they had the ideal instructor. Response options on the instrument range from zero to nine, with (0) indicating the student learned nothing and (9) indicating the student learned more than in any other class they have had. The instrument is scored by subtracting the student response on the first item from the response on the second item. An alpha reliability coefficient of .63 was obtained for the learning loss measure in this study.

The second student learning instrument is a six-item semantic differential measure that assesses student affective learning (Andersen, 1979; McCroskey, Richmond, Plax, & Kearney, 1985). Affective learning was operationalized by scores indicating student attitude toward course content, instructor, and behaviors recommended in the course. The instrument also

assesses student likelihood of engaging in the behaviors recommended in the course, intent to enroll in another course of related content, and likelihood of taking another course from the same instructor.

The six items on the affective learning measure are placed on seven-step, bipolar scales. Alpha reliabilities for this instrument have ranged from .92 (Gorham & Christophel, 1990) to .98 (Christophel, 1990). An alpha coefficient of .94 was obtained for this measure in the present study.

Data Analysis

Multiple regression analyses were performed to answer the research questions. All multiple regression analyses were run using the forced variable entry method, with mean scores substituted for missing data. The squared multiple correlation coefficient (R^2) was determined for each regression equation. Alpha was set at .05 for all tests of statistical significance.

The teacher served as the unit of analysis in this study. Mean scores on each of the measurement instruments were obtained for the 47 classrooms included in the sample and were used to perform the multiple regression analyses.

Results

The first multiple regression analysis revealed that perceived teacher efficacy, communication competence, and immediacy accounted for 64% of the variance ($R = .80$, $F = 25.74$, $p < .01$). This analysis also indicated that perceived teacher immediacy ($r = .69$, $p < .01$) and perceived teacher communication competence ($r = .79$, $p < .01$) were significantly correlated with affective student learning, while teacher efficacy did not yield a significant correlation. Therefore, perceived teacher immediacy and perceived teacher communication

competence appeared to be the best predictors of perceived affective student learning. Table 1 represents a summary of these results.

Table 1

Multiple Regression with Affective Learning as the Dependent Variable

Step number/ variable entered	Beta	R	R^2	Adj. R^2	R^2 Ch.	F	p
1. Teacher immediacy	.25						
2. Teacher efficacy	-.11						
3. Teacher competence	.63	.80	.64	.62	.64	25.74	.000

Note. Adj. R^2 = Adjusted R^2. R^2 Ch. = R^2 Change.

Results of the second multiple regression equation indicated that perceived teacher efficacy, communication competence, and immediacy accounted for 36% of the variance ($R = .60$, $F = 8.03$, $p < .01$). Interestingly, perceived teacher immediacy ($r = -.52$, $p < .01$) and perceived teacher communication competence ($r = -.55$, $p < .01$) were significantly and negatively correlated with perceived cognitive student learning, while teacher efficacy was not significantly related to cognitive learning. Results of this analysis are summarized in Table 2.

Table 2

Multiple Regression with Cognitive Learning as the Dependent Variable

Step number/ variable entered	Beta	R	R^2	Adj. R^2	R^2 Ch.	F	p
1. Teacher immediacy	-.32						
2. Teacher efficacy	.19						
3. Teacher competence	-.38	.60	.36	.31	.36	8.03	.000

Note. Adj. R^2 = Adjusted R^2. R^2 Ch. = R^2 Change.

Results of the third multiple regression analysis revealed that perceived teacher communication competence and immediacy accounted for 20% of the variance ($R = .44$, $F = 5.41$, $p < .01$). Teacher communication competence ($r = .36$) and teacher immediacy ($r = .44$) were significantly correlated with teacher efficacy. These results indicated that perceived teacher communication competence and perceived teacher immediacy were significant predictors of perceived teacher efficacy. Table 3 provides a summary of this multiple regression equation.

Table 3

Multiple Regression with Teacher Efficacy as the Dependent Variable

Step number/ variable entered	Beta	R	R^2	Adj. R^2	R^2 Ch.	F	p
1. Teacher immediacy	.42						
2. Teacher competence	.03	.44	.20	.16	.20	5.41	.008

Note. Adj. R^2 = Adjusted R^2. R^2 Ch. = R^2 Change.

An examination of the correlation matrix indicates high intercorrelations among the independent variables (see Table 4). Perceived teacher efficacy, teacher communication competence, and teacher immediacy appear to be highly correlated with one another. Implications of this multicollinearity will be discussed below.

Table 4

Correlations Among the Independent Variables

	Independent Variables		
	Teacher Efficacy	Teacher Competence	Teacher Immediacy
Teacher Efficacy	1.000	.36 *	.44 **
Teacher Competence		1.000	.78 **
Teacher Immediacy			1.000

Note. * $p < .05$. ** $p < .01$, two-tailed.

Discussion

The finding that perceived teacher communication competence and perceived teacher immediacy contributed significantly and positively to the prediction of affective student learning is consistent with previous research. Specifically, this research shows that teachers who are perceived as competent and immediate positively influence their students' affective learning.

The second multiple regression analysis indicated that perceived teacher communication competence and teacher immediacy were significantly predictive of perceived cognitive student learning. As with affective student learning, teacher efficacy did not make a meaningful

contribution to the regression equation. Further, an examination of the correlations between competence and immediacy and cognitive learning revealed that these variables were negatively related. Therefore, teachers who were perceived as competent and immediate had a negative impact on cognitive student learning. These results are inconsistent with previous research. However, as Kelley and Gorham (1988) pointed out, prior research on teacher communication behaviors and student learning had revealed "at best weak positive relationships- and, at times, inverse relationships- between these variables and cognitive learning" (p. 198).

The third multiple regression analysis indicated that student perceptions of teacher communication competence and teacher immediacy made significant contributions to the prediction of teacher efficacy. These results confirm previous research findings on the association among competence, immediacy, and teacher efficacy. Specifically, the findings of this analysis demonstrate a relationship between student perceptions of their teachers' competence and immediacy and teachers' own perceptions of their efficacy. Teachers who perceive themselves as efficacious, then, are also perceived by students as competent and immediate.

Overall, results of the present study indicated that teachers who perceive themselves as efficacious and who are perceived by students as communicatively competent and immediate have a significant, positive impact on perceived affective learning and a negative impact on cognitive student learning. According to the model proposed in the present study, perceived teacher competence and immediacy are process variables that significantly influence the products of affective and cognitive student learning. The model also indicated that teacher efficacy would be a significant contributor to student learning, but this was not supported by the data. Interestingly, perceived teacher communication competence and immediacy were

found to be significant contributors to perceived teacher efficacy. Therefore, a teacher's sense of efficacy is influenced by student perceptions of the teacher's competence and immediacy.

Results of this study represent an interesting paradox. While perceived teacher competence and teacher immediacy were significantly predictive of student learning, perceived teacher efficacy was not. This is paradoxical because teacher efficacy refers to a perception that teachers can influence student learning. It should be noted, however, that this finding may be attributable more to limitations in the study than to the teachers' attitudes.

Another unanticipated finding of this study was that perceived teacher communication competence and teacher immediacy significantly predicted cognitive student learning, but in a negative direction. This finding does not seem reasonable, however. Teachers who are perceived by students as competent and immediate should have a positive impact on cognitive student learning. It is reasonable to expect that student perceptions of teacher competence and immediacy are positively associated with cognitive student learning. It may be that the students participating in this study felt that they had not learned a great deal, yet nevertheless identified their teachers as competent and immediate.

Other factors may account for the reported lack of cognitive learning, such as lack of motivation or effort on the part of students. Such an explanation is supported by the finding that perceived teacher competence and immediacy were positively related to affective student learning. Therefore, students may report positive affect toward a teacher and a course, yet at the same time report having learned little in the course. Positive affect toward teachers may have distorted student perceptions of how much was actually learned in a course.

The finding that teacher communication competence contributed significantly to the prediction of student affective learning was expected. It makes intuitive sense that teachers who are communicatively competent will be perceived favorably by students. Further, students

should perceive favorably the course content and have positive attitudes toward the course when the teacher is perceived as competent. Students may simply enjoy a course more when they have positive regard for the teacher of the course.

It was also expected that perceived teacher immediacy would be a significant predictor of affective student learning, as immediacy is based on the concept of approach. Teachers who are immediate or approachable, for example, should have a positive impact on student attitudes. When students perceive that a teacher is approachable, the students will likely have positive attitudes toward the teacher and the course. Students may feel more comfortable in seeking the advice or assistance of an approachable teacher, and will therefore have greater regard for the teacher. This idea is intuitively appealing, and was supported by the data in the present study.

Limitations of the Study

The findings reported above must be considered tentative in light of the limitations of this study. These limitations include: 1) low reliabilities of the Teacher Efficacy and Cognitive Learning scales; 2) multicollinearity among the independent variables; and 3) the use of a summer school sample. Each of these limitations will be discussed in turn.

Low alpha reliability coefficients were obtained for both the Teacher Efficacy and the Cognitive Learning scales. The researcher can conclude, on the basis of teachers' comments, that the efficacy scale was not well-received. Several teachers responding to the survey indicated to the researcher that they had difficulty interpreting many of the items on the efficacy scale. Specifically, teachers mentioned that some of the items were not pertinent to them, or that the items applied only under certain conditions. Due to the perceived inapplicability of the items, it is difficult to conclude that the scale accurately measured teacher sense of efficacy.

It is difficult to ascertain the reason for the low reliability coefficient obtained for the Cognitive Learning Scale. One reason may be that a response bias existed among the student respondents. Students may not have attended carefully to the wording of the items on the scale, and perhaps misinterpreted the scale. The two-item cognitive learning scale instructed students to indicate 1) how much they had learned in the class in which they completed the questionnaire, and 2) how much they believe they could have learned had they had the "ideal" instructor. Students may have misunderstood how to respond to the second item, or felt that it was personal information they did not wish to disclose.

Another explanation for the low reliability of the cognitive learning scale was that the scale appeared toward the end of the questionnaire, and it may be that students were "fatigued" and hurriedly responded to the items. The questionnaire was rather lengthy (approximately 100 total items), and it is not unrealistic to assume that students became tired of answering the questions. Additionally, many students were not offered incentives for completing the questionnaires. Some of the teachers offered "extra credit" in the course, but the majority of the student respondents were not given such incentive. This lack of compensation may have resulted in an ambivalent attitude on the part of students toward the research project as well as the questionnaire itself.

Overall, the low reliability coefficients obtained for the efficacy and cognitive learning scales make the results of the multiple regression analyses tenuous. The findings of this study, then, are conjectural and point to the need for replication and further research in this area.

A second limitation of this study relates to the occurrence of multicollinearity of the independent variables. However, the independent variables in this study were highly, but not perfectly, correlated. Unless a condition of "perfect" collinearity exists, there is no violation of

the assumptions of regression. Therefore, in this case, the multicollinearity of the independent variables does not appear to be problematic.

The third limitation of this study relates to the use of a sample drawn during the summer session of classes. The use of this type of sample was somewhat problematic. It may be erroneous to assume that the summer school population adequately reflects the population of students during the regular school year. This limits the generalizations drawn from the findings of this study. However, this is not perceived to be a crucial limitation, as there were only a few noticeable differences in the summer school population. Specifically, the sample included a few high school students enrolled in a Journalism class (the class was considered a "workshop" for these students). The sample also included a small number of non-degree students, taking classes for enjoyment rather than credit toward a degree. Considering the large sample (n = 557) of student respondents, however, this limitation is perceived as minimal.

Directions for Future Research

There are several avenues for further study of perceived teacher efficacy, competence, immediacy, and student learning. A replication of the study might include a sample of students and teachers during the regular school year, as opposed to the summer school sample taken for the present study. This would indicate whether salient differences exist between regular school year and summer classes.

Another replication of the present study might involve the use of alternative measurements of teacher efficacy and cognitive student learning, as these instruments yielded low reliability coefficients in this study. For example, a teacher efficacy scale developed specifically for college-level teachers might more appropriately be used than the modified version of the efficacy scale used here. Such a scale could be made more suitable for the college level by

acknowledging the uniqueness of college teaching. The cognitive student learning scale used in the present study also yielded a disappointing reliability coefficient. In order to determine why this was the case, it would be helpful to replicate the study to examine whether a similar reliability level would be obtained. Also, future research may include a different measure of cognitive learning.

In addition to replicating the present study, it might be extended by examining other variables that potentially influence teacher efficacy, and in turn, student learning. Perceived teacher communication competence and teacher immediacy were included in this analysis as they had been linked to teacher efficacy and/or student learning in prior research. Variables such as humor (Gorham, 1988; Gorham & Christophel, 1990; Ziv, 1988), self-disclosure (Nussbaum & Scott, 1979; Sorenson, 1989), and "power," or classroom management strategies (Kearney, Plax, Richmond, & McCroskey, 1984; Kearney, Plax, Richmond, & McCroskey, 1985; McCroskey & Richmond, 1983; McCroskey, Richmond, Plax, & Kearney, 1985; Plax, Kearney, McCroskey, & Richmond, 1986; Richmond, 1990; Richmond & McCroskey, 1984; Richmond, McCroskey, Kearney, & Plax, 1987; Roach, 1991) have also been associated with student learning in past research. Therefore, it would be interesting to examine the influence of these variables on teacher sense of efficacy as well as student learning.

A second method of extension would be to examine the influence of teacher gender on the variables included in this study. It would be interesting to determine whether differences exist between male and female instructors with regard to sense of efficacy, and student perceptions of teacher communication competence, immediacy, and student learning. Although research in this area is limited, there is evidence to suggest that gender differences exist with regard to teacher sense of efficacy (Greenwood, Olejnik, & Parkay, 1990). This research is inconclusive, however, and indicates the need for further study.

A final suggestion for extending this study is to provide an interpretive description of classroom dynamics by observing directly both teacher and student classroom communication behaviors. The researcher could then compare teacher and student perceptions of efficacy, competence, immediacy, and student learning with the behaviors that are actually displayed in the classroom. This would provide an indication of the accuracy of teacher and student perceptions with respect to the variables mentioned above. In addition, such an analysis would render a more accurate account of the classroom environment and the complexity of teacher-student relationships. If, as Sprague (1992) contends, "no communication event can be fully understood by examining it within a single level of analysis" (p. 17), then a multidimensional method of analyzing classroom communication seems optimal.

This study has investigated the teacher communication behaviors that influence both teacher efficacy and student learning. An attempt has been made here to integrate past communication and education research, in order to produce a model of teacher efficacy as well as to provide a better understanding of effective classroom communication. The objective now should be to continue this line of research, by implementing the suggestions for future research offered in this study.

Teachers must be informed of the results of research such as the present study, as these findings will assist teachers in developing a repertoire of effective classroom communication behaviors. Ultimately, it is hoped that teachers will benefit from this research by using the information obtained to increase their sense of teaching efficacy as well as their job satisfaction.

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